MEMORANDUM **UTAH DEPARTMENT OF TRANSPORTATION**

Date: June 12, 2006

TO: David Adamson
R-1 Project Manager

FROM: John L. Leonard, P.E.
Traffic & Safety Operations Engineer

John Leonard

Digitally signed by John Leonard
DN: cn=John Leonard, c=US, o=Utah Department of Transportation, ou=Division of Traffic and Safety, email=jleonard@utah.gov
Date: 2006.06.12 11:48:50 -06'00'

SUBJECT: Preliminarary Operational Safety Report 06-080; Project No. ISTP-15-7(212)324E, PIN 4032; Layton Interchange EIS

We have evaluated the crash history for the subject interchange area for the three-year period of 2002 through 2004, with the following results:

1a. (SR-273 at I-15 NB on-ramp and SB off-ramp):
At the intersections of ramps: See Item 2.
On the ramps: 1 rear-end accident on the NB on ramp.

1b. (SR-126 at all ramps):
At SB on-ramp: See Item 4.
At NB off-ramp: No accident.

1c. (SR-232 at I-15 NB off-ramp and SB on-ramp): Predominant type of accident is rear-end at this interchange.
At the intersection of SB on/off ramp: 76 accidents with 44 (30 EB) rear-ends (58%), 21 left turns (27.6%), 7 right angles (9.2%), 3 sideswipes, and 1 backing-related accident.
On the SB on/off ramp: No accident.
At the intersection of NB on/off ramp: 66 accidents with 51 rear-ends (77%), 8 right angles, and 5 left turns.
On the NB on/off ramp: 1 NB sideswipe on the ramp.

2. (200 North, Kaysville, Flint Street to 400 West)

Urban Minor Arterial		ACTUAL				EXPECTED
		2002	2003	2004	TOTAL/AVG	
Number of Crashes		12	16	19	47/15.67	
Crash Rate		4.45	7.93	7.12	6.50	6.42
Severity		1.48	1.81	1.17	1.49	1.62
Rear-End	34.0%				16	
Right Angle	29.8%				14	
Left Turn	17.0%				8	
Single Vehicle	8.6%				4	
Various type	10.6%				5	

Crash data indicates that the crash rate of this section intersection is higher than the expected and the severity is lower than the expected. The predominant crash types are listed on the table above. Accidents for the concerned intersections are as follows:

1) I-15, NB On/Off Ramps: 16 accidents with 8 rear-ends (mostly WB), 5 left turns, 2 right angles, and 1 sideswipe.
2) I-15, SB On/Off ramps: 8 accidents with 4 right angles (a SB vehicle making left turn and hit by a EB/WB vehicle going strait), 2 rear-ends, and 2 left turns.
3) Kays Drive/900 West: 9 accidents with 6 right angles (a SB vehicle making left turn and hit by a WB vehicle going strait), 1 single vehicle, 1 rear-end, and 1 right turn.
4) Flint Street: 1 right angle accident.
5) SR-273: 4 accidents with 2 rear-ends, 1 left turn, and 1 right angle.

3. (Flint Street, from 200 North, Kaysville to Gentile Street, Layton)

Urban Collector		ACTUAL				EXPECTED
		2002	2003	2004	TOTAL/AVG	
Number of Crashes		10	4	8	22/7.3	
Crash Rate		4.61	1.84	3.69	3.38	6.97
Severity		2.20	1.00	1.63	1.61	1.62
Right Angle	27.2%				6	
Rear-End	18.2%				4	
Single Vehicle	18.2%				4	
Side Swipe	9.1%				2	
Left Turn	13.6%				3	

Crash data indicates that the crash rate of this section is lower than the expected and the severity is about the same as the expected. The predominant crash types are listed on the table above. There are no apparent accident patterns and clusters within this segment. Accidents for the two concerned intersections are as follows:

1) 200 North, Kaysville: 3 accidents with 2 right angles and 1 left turn.
2) Gentile Street: 1 rear-end accident.

4. (SR-126, from I-15 to Gentile Street, Layton)

Urban Minor Arterial		ACTUAL				EXPECTED
		2002	2003	2004	TOTAL/AVG	
Number of Crashes		30	30	27	87/29	
Crash Rate		9.06	9.00	8.10	8.72	5.44
Severity		1.37	1.53	1.44	1.45	1.62
Left Turn	35.6%				31	
Rear-End	27.6%				24	
Right Angle	18.4%				16	
Side Swipe	8.0%				7	

Crash data indicates that the crash rate of this section is higher than the expected and the severity is lower than the expected. The predominant crash types are listed on the table above. Accidents for the 3 concerned intersections are as follows:

1) I-15 SB on ramp: 10 accidents with 3 rear-ends, 2 right angles, 2 sideswipes, 1 pedestrian, 1 U-turn, and 1 single vehicle. One rear end accident occurred on the NB on ramp.
2) South Main Street: 4 accidents with 2 right angles, 1 sideswipe, and 1 left turn.
3) Gentile Street: 55 accidents with a high percentage of 29 N-S and E-W left turn accidents, 14 rear-ends (10 NB), 9 right angles, 1 pedestrian, and 3 various collision types. There appears to be a left turn problem at this intersection.

5. (South Main Street, Layton, from Fort Lane to SR-126)

Urban Local Road		ACTUAL				EXPECTED
		2002	2003	2004	TOTAL/AVG	
Number of Crashes		7	10	4	21/7	
Crash Rate		1.75	2.50	1.00	1.75	2.27
Severity		1.86	1.20	1.75	1.60	2.00
Single Vehicle	28.6%				6	
Right Angle	23.8%				5	
Rear-End	14.3%				3	
Head On	14.3%				3	

Crash data indicates that the both crash rate and severity of this section are lower than the expected. The predominant crash types are listed on the table above. Accidents for 3 concerned intersections are as follows:

1) Fort Lane: 5 accidents with 3 right angles, 1 rear-end, and 1 bicycle accident.
2) SR-126: 1 right angle accident.
3) Knowton Street: 5 accidents with 3 right angles, 1 single vehicle, and 1 left turn.

6. (Fort Lane Street, Layton, from I-15 NB to Gentile Street)

Urban Collector		ACTUAL				EXPECTED
		2002	2003	2004	TOTAL/AVG	
Number of Crashes		9	9	3	21/7	
Crash Rate		5.37	5.37	1.79	4.18	4.46
Severity		1.67	1.67	1.33	1.56	1.62
Single Vehicle	19.0%				4	
Right Angle	19.0%				4	
Left Turn	14.3%				3	
Pedestrian/bike	14.3%				3	

Crash data indicates that the crash rate of this section is lower than the expected and the severity is also lower than the expected. The predominant crash types are listed on the table above. Accidents for the two concerned intersections on this road are as follows:

1) SR-109: 10 accidents with 3 left turns, 4 right angles, 1 sideswipe, 1 pedestrian accident, and 1 single vehicle accident.
2) South Main Street: No accident.

7. (Gentile Street, Layton, from King Street to SR-126)

Urban Collector		ACTUAL				EXPECTED
		2002	2003	2004	TOTAL/AVG	
Number of Crashes		9	19	20	48/16	
Crash Rate		3.44	7.27	7.65	6.12	3.84
Severity		1.44	1.26	1.40	1.37	1.72
Rear-End	52.1%				25	
Single Vehicle	16.7%				8	
Right Angle	10.4%				5	

Crash data indicates that the crash rate of this section is higher than the expected and the severity is lower than the expected. The predominant crash types are listed on the table above. Thirty two (66.6%) accidents occurred at various intersections within this segment as follows:

1) King Street: 7 accidents with 3 rear-ends, 1 left turn, 2 sideswipes and 1 right angle.
2) Flint Street: 8 accidents with 3 WB rear-ends, 2 right angles, and 3 single vehicle accidents.
3) Church Street: 4 accidents with 3 rear-ends and 1 right angle.
4) SR-126: 8 accidents with 4 rear-ends, 2 left turns, 1 right turn, and 1 single vehicle.

8. (SR-109, from SR-126 to Fort Lane)

Urban Minor Arterial		ACTUAL				EXPECTED
		2002	2003	2004	TOTAL/AVG	
Number of Crashes		21	28	19	68/22.66	
Crash Rate		6.43	8.51	5.78	6.91	5.82
Severity		1.48	1.54	1.32	1.45	1.66
Rear-End	77.9%				53	
Right Angle	8.8%				6	
Single Vehicle	8.8%				6	

Crash data indicates that the crash rate of this section is higher than the expected and the severity is lower than the expected. The predominant crash types are listed on the table above.

Seventy two percent (38 out of 53) of rear-end accidents were westbound. Fifteen of total rear-end accidents involved 3 or 4 vehicles, and most of them had one vehicle rear-ended 2 or 3 stopped vehicles. Accident clusters were found at the following two intersections:

1) Wasatch Drive: 18 accidents with 17 rear-ends (15 WB and 2 EB) and 1 right angle.
2) Fort Lane: 14 accidents with 6 rear-ends (4 EB and 2 WB), 4 right angles (3 EB/NB and 1 EB/SB), 1 single-vehicles, 2 left turns, and 1 pedestrian accident.

Source documents are available at the Division of Traffic and Safety for additional analysis. If questions arise, please call me at 801-965-4045.

JL/eg

cc: Robert Hull
John Leonard
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May 16, 2006
~~June 16, 2005~~

David Adamson
Project Manager
Utah Department of Transportation
166 West Southwell Street
Ogden, Utah 84404-4194

Subject: **Layton Interchange EIS**
Project No. ISTP-15-7(212)324E PIN Number: 4032
Request for Operational Safety Report

Dear Mr. Adamson:

The purpose of this letter is to place a request for an Operational Safety Report for the Layton Interchange EIS project. Please make this request to the Division of Traffic and Safety.

Roadways that require evaluation are described in the following narrative as well as depicted in the attached figure. The information needed is the number of accidents, expected accident rate, severity rate, and the expected severity rate for all roadways and intersections described in the following:

- I-15 Northbound and Southbound from SR-273 (200 North, Kaysville) at milepost 328.6 to SR-232 (Hill Field Road, Layton) at milepost 331.6, a distance of approximately 3.0 miles.
  - Need to obtain information for all on- and off-ramps within the specified limits including ramp gore areas. There are three interchanges:
    - SR-273 - 200 North Kaysville
      - Northbound on-ramp and Southbound off-ramp
    - SR-126 – Layton Main Street
      - All ramps, which are Northbound off-ramp and Southbound on-ramp
    - SR-232 – Hill Field Road
      - Northbound off-ramp and Southbound on-ramp
- 200 North, Kaysville from Flint Street to 400 W.
- Flint Street from 200 North, Kaysville to Gentile Street, Layton.
- SR-126 From I-15 to Gentile Street, milepost 0.00 to 1.60
- South Main Street, Layton from the intersection of Fort Lane to the intersection of SR-126.
- Fort Lane Street, Layton from I-15 NB to the intersection of Gentile Street.
- Gentile Street, Layton from the intersection of King Street to the intersection of SR-126.
- SR-109 from the intersection of SR-126 to the intersection of Fort Lane (milepost 0.00 to milepost 1.34)

To be included with the roadways described above are all major intersections. These include:

- 200 North, Kaysville and Flint Street
- 200 North, Kaysville and all I-15 on- and off-ramps
- Flint Street and Gentile Street, Layton
- Gentile Street, Layton and Church Street, Layton
- Gentile Street, Layton and SR-126
- SR-109 and Fort Lane, Layton
- South Main Street, Layton and Fort Lane, Layton
- South Main Street, Layton and SR-126

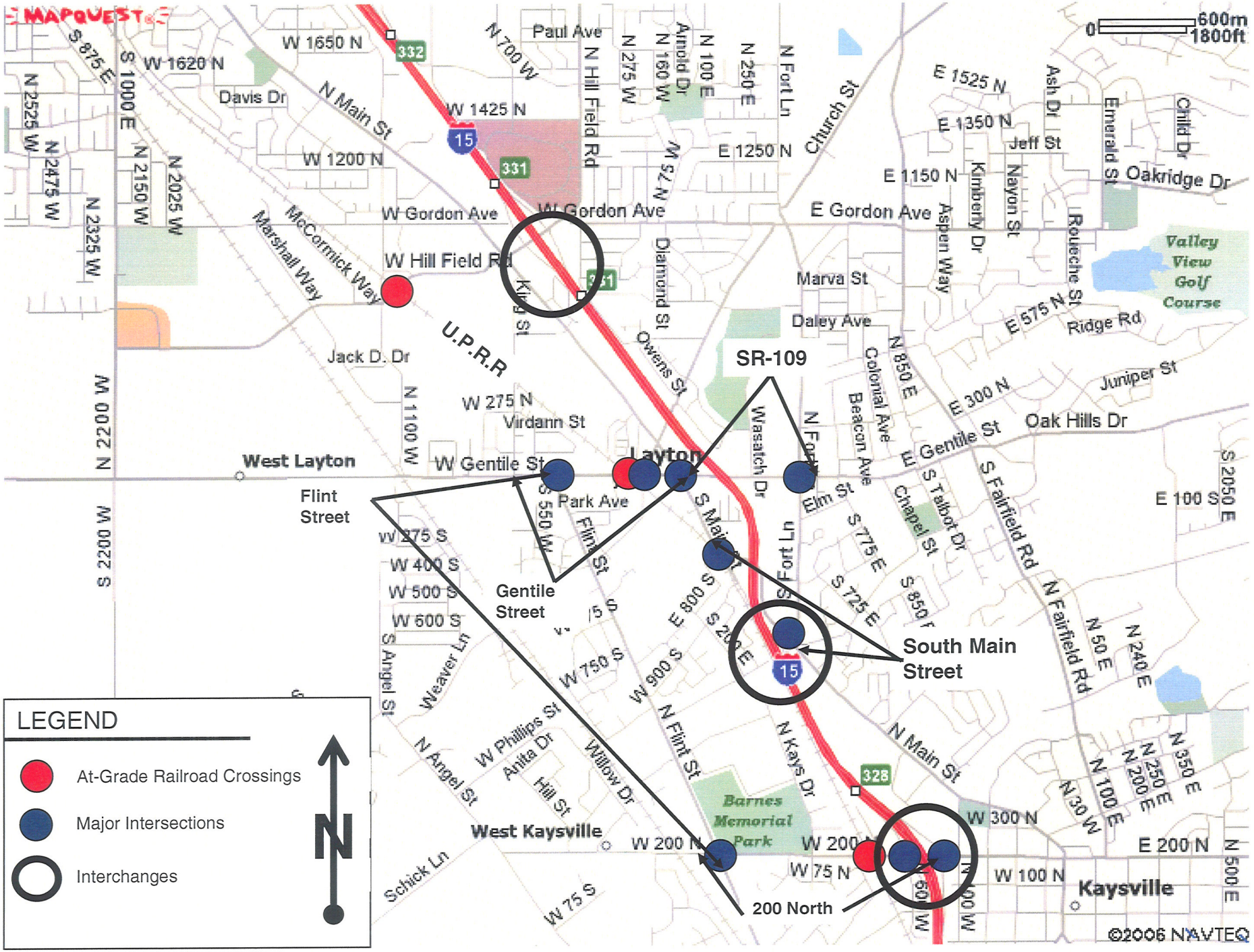
In addition to these roadways, there are several at-grade railroad crossings with the Union Pacific Railroad. The number of railroad/motor vehicle accidents is needed for each crossing from 200 North, Kaysville to Hill Field Road, Layton.

Thank you for your assistance. Please give me a call if you have any questions at 801-763-5164.

Sincerely,
HORROCKS ENGINEERS

Thomas S. Allen, P.E
Environmental Engineer

Cc: File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E Gordon Ave
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McCormick Way
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